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The HIGH SCHOOL JOURNAL

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THE HIGH SCHOOL JOURNAL

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SCIENCE IN THE HIGH SCHOOL

A Review of Science Teaching in the High Schools of North Carolina for 1920-1921

By J. N. COUCH
Instructor in Botany, U. N. C.

THE ORGANIZATION of science courses in the high school is one of the most difficult problems with which thoughtful superintendents have to deal. Should general science supplant physical geography as an introductory science? If so should physical geography be taught? What other sciences should be taught and in what sequence? What methods should be used? The purpose of this article is not to answer these questions directly, but rather to furnish descriptive information about the organization and teaching of the sciences in the larger city schools of North Carolina.

To secure this information a set of questions on each of the following sciences was prepared: General science, physical geography, biology, chemistry, and physics. In preparing the questionnaire an attempt was made to include questions so worded and arranged that, if they were answered fully, it would furnish information covering more or less fully the following points: First, what science courses are taught; second, what the equipment is as to teaching personnel; third, what methods are used and what ideas are kept in mind in teaching the courses; fourth, how much and what kind of laboratory work is done; fifth, what amount of laboratory equipment is available? Mimeographed copies of the questionnaire were made, and a copy was mailed to each of the heads of the science departments in the twenty-seven North Carolina cities with five thousand or more inhabitants. In the course of three months nineteen of the twenty-seven questionnaires were returned with the desired information. The information was then arranged in five separate tables.

In Table I the first, second, third, and fourth year science courses in each of the cities which returned the questionnaire are shown. General science is the first year science in all of the schools except one, the first year science in this case being physical geography.

TABLE I

Courses in Science Given	Asheville	Burlington	Chapel Hill	Charlotte	Concord	Durham	Fayetteville	Goldsboro	Greensboro	Greenville	Henderson	Kinston	New Bern	Raleigh	Rocky Mount	Salisbury	Washington	Wilmington	Wilson	Winston-Salem
First Year Gs—Gen'l Sc.	GS	GS	GS	PG	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS	GS
Second Year B—Biology PG—Phys. Geo.	B	B	PG	B	PG	B	PG		B	B	B	PG	B	B	B	PG	B			B
Third Year C—Chemistry BY—Botany	C			C	P			C	C		C	B	C	C	C		C		BY	C
Fourth Year P—Physics	P		P	P			P	P	P	P	P	P	P	P	P	P	P	P	P	P
Total Years Science	4	2	3	4	3	2	3	3	4	3	4	4	4	4	4	3	4	2	3	4
Pop. in M	28	5		46	9	21	8	11	19	5	5	6	12	24	12	13	6	33	10	48

In the second year biology is taught in twelve schools and physical geography in four. Three schools offer no science in the second year.

Chemistry is offered in ten schools as the third year science. Physics is offered in one school; biology in one, and botany in one. Seven schools offer no third year science.

As a fourth year science, physics is offered in six-

teen out of the nineteen schools. Counting the school which offers physics in the third year, the number of schools offering physics is only one less than the number offering general science. Three schools offer no fourth year science.

There are ten schools giving four years of science, seven giving three, and three schools giving two years of science.

Coming now to a somewhat detailed discussion of the separate sciences and taking up general science first, (Table II) the question immediately arises, is the course a text-book course, a question and answer course, or is the laboratory method used? In science teaching this is one of the most important questions. By studying the table for general science it is discovered that the time devoted to laboratory work varies from naught hours a week to one and two-thirds hours a week. Of the eighteen schools, eight use one and two-thirds hours a week in laboratory work; one gives one and one-third hours to laboratory work; five give forty-five minutes to laboratory work, and three give none.

The way in which these laboratory periods are used, the nature of the laboratory work, is a very critical point. We approach the ideal situation in laboratory work as conditions become such that the student's work is individual. It is observed in column two that in two schools the ideal situation is approached, in that the laboratory work is performed by the students working individually and in groups. Demonstration experiments may be used on class but are not counted as a regular laboratory exercise. In six schools the laboratory work consists of individual work by the students and demonstration experiments performed by the teacher. In seven schools the laboratory work consists entirely of demonstration exercises performed by the teacher. In three schools the course is entirely a text-book course.

TABLE II

Schools Teaching Gen'l Sc.	Hrs. Wk.	Lab. Wk.	Equip.	Av. on Class	Total	Exclus. Tchr.	Project Mthd. Used
Asheville	1⅔	Indv. Dems.	$50	27	?	Yes	No
Burlington				24	48	No	In Part
Chapel Hill	1⅔	Indv. Dems.	$100	15	15	No	In Part
Concord				35	105	No	Slightly
Durham	1⅔	Ind & Gp. Wrk.	$1200	21	84	Yes	Yes
Fayetteville	¾	Dems.	Phys. Lab. Used	40	120	Yes	
Goldsboro	1⅔	Indv. Dems.	$50	25	80	No	Yes
Greensboro	1⅔	Indv. & Gp. Wrk.	$300	28	270	Yes	Entirely
Henderson	¾	Dems. & Home X	Chem. Lab. Used	14	14	No	
Kinston	¾	Dems.	Phys. Lab. Used	30	60	No	Some
New Bern				22	43	No	No
Raleigh	?	Dems.	$200	35	200	Yes	Yes
Rocky Mount	1⅔	Dems.	$100	28	28	No	Slightly
Salisbury	1⅔	Dems.	Phys. Lab. Used	30	120	No	Some
Washington	¾	Dems.	?	30	60	No	
Wilmington	¾	Dems.	$50	37	?	Yes	No
Wilson	1⅓	Indv. Dems.	$215	25	110	No	Yes
Winston-Salem	1⅔	Indv. Dems.	$200	40	200	Yes	Yes

Given the choice between an excellent teacher with no laboratory equipment and a mediocre or poor teacher with elaborate equipment, I should choose the former for the eighth grade student. But *actually* some schools have excellent teachers and some mediocre ones. Now good laboratory equipment increases the mediocre teacher's efficiency in an arithmetical ratio and increases the excellent teacher's efficiency in a geometrical ratio. As seen in column three the value of the laboratory equipment varies from zero to twelve hundred dollars. One school has twelve hundred dollars worth of general science equipment, the next highest figure being three hundred. Four schools have about two hundred dollars invested in equipment and four schools have about fifty dollars invested in equipment. Three

schools use the physics laboratory and equipment and one school uses the chemistry laboratory and equipment. Three schools have no laboratory equipment and do no laboratory work.

The average number of students a teacher has on class is a fact of considerable importance which can be represented by figures. The significance of this is seen most clearly when an attempt is made to idealize the relation between teacher and students. The class should be a center in which is focused the work done in the laboratory, on field trips and excursions, at home, and in the library. Occasional questions by the teacher and answers by the students should give place to lively class discussions in which each student takes an active part in contributing to and organizing the information dealt with. In such discussions the teacher's function should be to direct, stimulate and advise. It is almost impossible to conduct a large class on the lines suggested above. The size of the classes in general science as seen in column five varies from fourteen to forty. There are eight schools with classes averaging thirty or more students and ten schools with averages less than thirty. Two schools have less than twenty students on class; eight between twenty and twenty-nine; six between thirty and thirty-nine; and two schools have forty students on class.

The project method has recently become very popular in some schools in teaching science, especially general science. One school uses this method entirely. Eleven others use it slightly or considerably, three do not use it, and three schools gave no answer.

It seems from the results obtained in the questionnaire that the project method is not thoroughly understood. "A project is any projected or proposed activity or experience which an individual proposes to enter upon or carry through to the end." To illustrate: The project may be to rid a community of mosquitoes or house-flies or to make an electric motor. It may be a small piece of work lasting a few minutes or it may be a prolonged piece of work lasting for weeks.

The project method, though the phrase expresses a more or less hazy idea, is an emancipation from the stilted class room methods formerly used in almost all and still employed in many of our schools.

Other methods are used but cannot be dealt with here.

TABLE III

Schools Teaching Biology	Lab. Hrs.	Nature of Lab. Wk.	Field Trips	Value of Equipmt.	No. of Micrs.	How Sub. Approach.	Av. on Class	Total Enrol.
Asheville	3	Study of Material Discussed on Cl.	No	$2,000	11	Plants; Animals	23	
Burlington	0		No		1		32	64
Charlotte	1	Field Study of Pls. & Insects; Str. & Wk. of Pls.; Str. Fr.	Yes (12) 1920-21	$450	2	As in Hunter's Civ. Biol.	40	200
Durham	3⅓	Exps. & Research on Cl. Problems	Yes	$1,400	?	As in Hunter's Civ. Biol.	15	73
Greensboro	1½	Pl. & Animal Dissect (Beans, Insects) Human Biology	Yes (8) 1920-21	$250	1	Pls. & Ans. Separate	26	103
Henderson	0	Pls. in Field	Yes (8) 1920	$0		Plants; Animals	10	10
Kinston	½	Pls. & Ans. Dissect. & Drawn	Yes	0		Civ. Biol. Fall; Practical Spr.	20	20
New Bern	1⅓	Dissect. of Insects Bact. Etc.; Plant & Animal Relations	Yes (2) 1920-1	$350	1	Pls. Rel. to Ans.; to Man; Human Phys.	23	47
Raleigh	3	Individual Work and Fiseld Trips	Yes	$1,000	9	Pls.; Ans.; Sys. Bot.; Field Wk.	23	70
Rocky Mount	0	Demonstration Exps. by Teacher	No	$50	1	Pls. Fall; Ans. Spr. (Mainly)	26	80
Washington	0		No	$0			?	50
Wilson (Botany)	1⅓	Mostly Demonstr. by Teacher	Yes (14) 1920-1	$100	2		20	40
Winston-Salem	1⅙	Exs. in Hunter's Manual; Demonstr. and Indiv. Work	Yes	$300	3	As in Hunter's Civ. Biol.	30	?

Biology

Table III shows similar data for biology. Out of the nineteen schools returning the questionnaires twelve give a course in biology and one gives a course in botany.

Of all high school science subjects it seems that good laboratory work could be done in biology most easily and conveniently with a minimum amount of equipment. North Carolina is second to no state in the richness and variety of her *fauna* and *flora*. And due to the fact that most of our cities are relatively small this laboratory, alive with plants and animals, is easily and quickly accessible to almost any high school class.

As seen in column one the time given to laboratory work in biology varies from zero hours to three and one-half hours a week. One school gives three and one-half hours a week to laboratory work; two give three; one gives one and a half; two give one and one-third; one gives one and one-sixth; one gives one hour; and one gives one-half hour to laboratory work; three give no laboratory work.

The value of laboratory equipment varies from nothing to two thousand dollars. Three schools have one thousand dollars or more invested in equipment, and only three schools give the course in biology without any equipment. One school has eleven compound microscopes, one has nine, one three, two have two, and four have one microscope.

The nature of the laboratory work, a faint idea of which may be had by observing column two, is very diverse. In the first school the laboratory work runs parallel to the class work and consists of a study of material discussed on class; plant and animal types are taken up separately and systematically. In the third school the laboratory work runs parallel with the class work. The problem-project method is used. In the next school the laboratory work is run partly separately from the class work. In the laboratory plants and animals are studied separately. A few laboratory types are taken up and studied thoroughly. The bean is used as a plant type; the rabbit as an animal type. Insects and bacteria are also studied. In two of the schools the laboratory work consists mainly of demonstration work by the teacher.

All of the schools except four use field trips in connection with the laboratory work. Two of the schools make a field study of plants and animals the main part of the laboratory work.

Space does not permit a detailed discussion of the various ways in which the laboratory work in biology is organized or should be organized. It would be worth while, however, to consider briefly the point of view or aim of the biology course. In the first school the point of view is stated as follows: "We aim to teach fundamental physiology and structure (as related to function) of common forms chiefly such as contribute to evolutionary history or are very common in the environment of pupils. In so doing we hope to instill an appreciation of plants and animals. The economic aspect is considered whenever important, and is stressed in bacteria, fungi, and disease producing and carrying animals. At the conclusion of animal forms about six weeks is devoted to human physiology." In the fourth school the point of view is

Table IV

Schools Teaching Chemistry	Exclus. Tchr.	Total	Av. in Lab.	Lab. Hrs.	Wk. Indiv. or in Prs. or Demstr.	When Exps. Written Up	Lab. Fee	Value Equip.
Asheville	Yes	80	20	3	Pairs	In Lab. (Notes Never Leave Lab.)	Only Broken Parts Paid For	$3,000
Charlotte	No	45	15	2	Pairs	In Lab.	No	$1,000
Goldsboro	No	12	12	2	Groups	In Lab. and at Home	No	
Greensboro	Yes	46	15	3	Indiv.	In Lab. (Notes Never Leave Lab.)	$2 Yr.	$900
Henderson	No	11	11	50 Min.	Pairs	At Home	No	$300
New Bern	No	71	18	1⅓	Pairs or Rarely 5; Rarely Demstr.	Notes During Exp. Written Up at Home	$1 Yr.	$750
Raleigh	No	36	12	2⅔	Indiv.	In Lab. (Notes Never Leave Lab.)	No	$400
Rocky Mount	No	38	19	4	Groups of 2 or 3	In Lab.	No	$300
Washington	No	10	10	2	Groups	In Lab. and at Home	No	
Winston-Salem	No	55	15	2⅔	Indiv.	Notes During Exp. Written Up at Home	To Cover Breakage	$800

stated as follows: "The development of the power of logical thinking, the pupil's relation to life, and his civic responsibility are aims of the course. We do not lose sight of instilling an appreciation of nature or of preparing for future science work." The seventh school in the list states that the life processes are stressed considerably; and that they give much time to the civic part of biology, i. e., how man may improve his environment and the community in which he lives. Another school states the fundamental aim of the biology course as: "a study of the interrelation of plants and animals and their economic and industrial importance. The plant side is made the basis for agriculture, horticulture, and forestry and the animal side is made a basis for human physiology. Nature study is not the main purpose of the course."

In spite of the fact that no hard and fast rules should be made regulating the content or purpose of a biology course there are certain central ideas which should be kept in mind:

1. The interrelation of the animate and inanimate world.
2. How plants and animals are fitted to nourish themselves, grow, and reproduce.
3. The unity and kinship of plant life and the unity and kinship of animal life and the interrelation between the two.
4. The power of man to control the habits and relationships of plants and animals to serve his own ends.

The opportunity should not be lost to enlarge the student's interest in life by acquainting him with his plant and animal neighbors. This part of a high school biology course, if properly handled, would be of much lasting benefit and pleasure to the students.

Chemistry

Chemistry is taught in ten of the nineteen schools returning the questionnaire. The first of these schools, Asheville, has proposed to introduce a short course in qualitative analysis to meet the needs of students who become particularly interested in chemistry.

It will be observed in column one that two of these ten schools have an exclusive teacher for chemistry. The teacher in the first of these two schools has eighty students, while the teacher in the second has forty-six chemistry students. The eight remaining schools do not have an exclusive chemistry teacher. In one school chemistry and physics are taught by one teacher. In another school one teacher teaches chemistry and biology. In the other six schools the chemistry teacher may also be a mathematics, history, or language teacher. Where the classes are small and the teacher is endowed with unusual natural ability, energy, and unflagging enthusiasm and in addition has had college training in chemistry, this last combination may be fairly successful. In the vast majority of cases, however, where one teacher attempts to handle two unrelated subjects such as chemistry and history, one or the other is quite liable to be a complete farce. The ideal chemistry teacher knows more about chemistry, is more interested in chemistry, and is continuing to learn more about chemistry than any other subject. Chemistry had better be left untaught than taught by an unqualified teacher.

Table V

Schools Teaching Physics	Exclus. Tchr.	Lab. Hrs.	Total	Av. in Lab.	Wk. Indiv. or in Prs. or Demstr.	Val. Equip.	Time (in Wks.) Given to Mechans.	Heat	Snd.	Lgt.	Elc. Mag.
Asheville	No	3	25	12-13	Pairs	$3,000	5	4	3	5	8
Charlotte	No	3	38	19	Pairs	$1,000					
Concord	No						12	6	4	4	8
Fayetteville	No	¾	16	16	Indiv.	$150					
Goldsboro	No	2	40	20	Pairs	$200					
Greensboro	Yes	3	43	15	Indiv.	$500	10	8	4	4	10
Henderson		0	8								
Kinston	No		10	10	Demonstr. by Teacher	$50	8	8	8	1	8
New Bern	No	2			Pairs	$350					
Raleigh	No	2⅔	18	9	Pairs (Notes) Independently	$500					
Rocky Mount	No	4	11	11	Groups	$300	12	4	4	4	8
Salisbury	No	3	16	16	Indiv. & Pairs	$1,000	15	6	2	5	8
Washington	No	2	15	15	Groups		8	6	4	6	8
Wilmington	Yes	0	60			$50					
Wilson	No	1⅓	25	25	Demonstr. by Teachers (Notes)	$725	6	2	2	2	6
Winston-Salem	No	?	20	20	Demonstr. by Teacher		8	8	8	8	1

The average number of students in the laboratory varies from ten to twenty. The time given to laboratory work runs from fifty minutes in one school to four hours a week in another. Two schools have three hour laboratory periods; five have two to three hour laboratory periods; and one school has one and a third hours of laboratory work.

In three schools the work in the laboratory is done individually by the students, in three schools the work is done in pairs, and in the four remaining schools the work is done in pairs, or small groups or is rarely performed as a demonstration experiment by the teacher.

In five of the schools the teachers require the pupils to write up the notes in the laboratory; in the other five schools the notes may be written up in the laboratory and at home.

Two schools charge a laboratory fee and two require broken articles to be paid for as broken; the six other schools charge no laboratory fee.

The value of the laboratory equipment varies from naught in two schools to three thousand dollars in one school. Four schools have between seven hundred and fifty and one thousand dollars invested in equipment and three schools have equipment valued from three to four hundred dollars.

Physics

Sixteen of the nineteen schools returning the questionnaire teach physics and two have an exclusive teacher for the subject as is shown in Table V.

Six schools either give no laboratory work or, as is the case in three schools, the laboratory work is done by the teacher as demonstration experiments. One school has a forty-five minute laboratory period, another has an hour and twenty minute laboratory period, and all the remaining nine schools give two to four hours weekly to laboratory work.

In schools where individual or group laboratory work is done by the students the average number in the laboratory sections varies from nine to twenty. In two schools the laboratory work is done by the pupils individually. In six schools the laboratory work is done by the students working in pairs and in two schools the work is done in groups.

Four schools have no laboratory equipment. One has three thousand dollars worth; two have one thousand dollars worth; one has seven hundred and twenty-five; two have five hundred; and the remaining six schools have laboratory equipment valued from three hundred and fifty down to fifty dollars.

The time in weeks given to mechanics, heat, sound, light, and electricity is shown in the last five columns of Table V.

Conclusion

A few of the general conclusions which may be drawn from the study are:

General science and physics, judging from the number of schools teaching these subjects, are the most popular high school science courses; biology comes next and chemistry last. Physical geography is rapidly being supplanted by general science though a few schools are still retaining physical geography in their curriculum.

Judging from the size of the classes and the character of the laboratory work done, more and better equipped teachers are needed to teach physics and general science.

The laboratory equipment in the majority of cases is good.

Several schools are attempting to give four full years of science when two years, well taught, would be much better.

TRANSPORTATION OF PUPILS IN PITT COUNTY, N.C.

ALL SCHOOL trucks in Pitt County are the property of the Board of Education. No district funds of any type are invested in them. We find that this plan gives us a decided advantage over that of allowing the district to buy its own trucks.

"At the beginning of the school year the principals of our consolidated schools were called together and furnished a supply of order forms of the type enclosed, and also a supply of monthly reports, copies of which are attached. An effort was made to impress upon them the very great necessity of exercising the proper care in the operation of trucks under their control. They were advised in no uncertain terms that the successful and economical operation of these trucks was considered a very definite part of their work. Should the trucks not receive the proper care, or should the cost of operation prove excessive, they would not be considered for position in our schools for next year. With this as a basis, we then began the transportation of pupils. Student drivers were employed. A few of these received no pay whatever. Several were paid $5 per month, and a number received as much as $10 per month. This was the maximum salary allowed. Each driver was charged with the responsibility of seeing that his truck was kept in proper condition. One local garage at each consolidated school was designated as a supply and repair

(Continued on page 223)

A LATIN FORM TEST

For Use in High School Classes

By LAWRENCE L. LOHR, JR., A. M.*

DURING THE LAST few years there has been a remarkable amount of interest and activity manifested in devising and using tests or scales for measuring the work of the classroom. There have been devised scales for measuring ability in the four fundamental processes in arithmetic, scales for handwriting, reading, spelling, language, composition, drawing, etc. They have been fairly well standardized and are being used with great success in an ever-increasing number of schools. So far, almost all of the work that has been done in this direction has been in connection with the elementary school subjects. There have been only a few attempts to carry this work on into the higl. school. There are tests in the process of standardization in the following high school subjects: Physics, History, Latin, French, German and Algebra.

The tests in the languages just mentioned are of two kinds, a vocabulary test and a translation test. As far as we know, there are no tests devised to measure the pupil's knowledge of word *forms* in these languages. The Latin Form Test which is here described is a first attempt to work out this kind of test.

It was the plan of several members of the faculty in the School of Education of the University to attempt to devise a three-fold Latin test, one part being a test of vocabulary, another being a test of translation, and the third part, the form test. So far there has been no work done except on the part that deals with the forms. It is the work done on this form test that serves as the basis of this study.

In working out the plan for making the test there was nothing available which could be used as a guide. Everything, therefore, had to be done for the first time, and it was often necessary to change the method of procedure. In all the work, however, the central idea has been to include in the list of forms used only those of most common occurrence in high school Latin.

This plan was decided upon after investigating the nature of the several vocabulary tests already worked out for French, German and Latin. The Latin Test, as devised by Prof. Starch, of the University of Wisconsin, is described here in order to make clear the reasons for using only the commonest forms in the Latin Form Test. This vocabulary test is composed of two sets of 100 words each selected by the following method:

"The first word on every 20th page of Harper's Latin Dictionary was chosen. Every 20th page was selected because that gave 100 words scattered at uniform intervals throughout the entire vocabulary. List 1 was made up by taking the first word from pages 20, 40, 60, etc. List 2 was made up by taking the first word from pages 21, 41, 61, etc.

"This method of selection has three distinct advantages. First, it gives a representative and uniform sampling of the entire Latin vocabulary. Second, the score obtained has a definite significance in the sense that it indicates the percentage of words of the entire Latin vocabulary that a person knows. If a pupil knows 25 words of each list, it means that he knows 25 per cent of the entire vocabulary. Third, any number of additional lists that may be desired can be made up by following the same plan of selection."[1]

A partial list of the words used in one of the tests is given below for the purpose of showing the kind of words that are selected by this method.

LATIN VOCABULARY TEST I

After each Latin word that you know, write the number of its English equivalent.

LATIN WORDS

1. accusabilis	11. balatro
2. admirabiliter	12. bisolis
3. aereus	13. caducarius
4. alatus	14. canon
5. alatucius	15. cata
6. anhelatio	16. certatim
7. apparatus	17. circummunitio
8. argutatio	18. coercitio
9. assignatio	19. commistim
10. auctoro	20. concienens

The English equivalents then follow in a list arranged alphabetically, each word having a number.

There are altogether 100 words in the list, and a very large number of them are words such as those just given. Undoubtedly, the average high school pupil does not know more than a very few words in the whole list. A glance at the words used will convince anyone of the truth of this general assertion. As a further proof, one need only to turn to Lodge's *Vocabulary of High School Latin* where he will find that only two of the twenty words just given occur at all in the whole four books of Cæsar, four orations of Cicero, and six books of Virgil read by high school

* Reprinted from the HIGH SCHOOL JOURNAL for November and December, 1918.

[1] Starch, *Educational Measurements*, pp. 174-175. Macmillan, 1916.

Latin classes. The word *aereus* occurs four times in Virgil, and the word *certatim* occurs three times in the same author. The other words do not occur at all. Just how many of the other words in the whole list do not occur in the high school Latin texts could be determined readily from the above mentioned book. Certainly only a small number do occur, and the number is so small that one naturally questions the real value of the test as a whole. It would seem that a list of words made up from the real high school Latin vocabulary would be far better than this list of rare and unusual words.

In working out the general plan for the Latin Form Test it was thought best, therefore, to have the test made up not of rare and irregular forms, but rather of those forms which are most often found in high school work. It was thought that a test of this kind would be of more value in determining the pupil's knowledge of the forms of the Latin language. A list that includes a lot of very uncommon forms would be even less usable than the vocabulary test that contained so many unusual words.

The first step in devising the test seemed to be to find out in a general way what topics to include in the list. A careful study was made of sixteen textbooks* widely used in first year Latin classes for the purpose of finding out which topics received the greatest amount of emphasis. From the table of contents in each textbook the total number of lessons spent on each topic was ascertained. For example, there was a total of thirty-one lessons on demonstrative pronouns, a total of seventy-seven on the third declension, etc.

After the total number of lessons on each of about forty different topics had been worked out, the next step was to get the average number of lessons on

* 1. Collar and Daniell, *First Year Latin.*
2. D'Ooge, *Latin for Beginners.*
3. Gunnison and Harley, *Latin for the First Year.*
4. Smith, *Latin Lessons.*
5. Bain, *First Latin Book.*
6. Pearson, *Essentials of Latin.*
7. B. C. Smith, *Elements of Latin.*
8. Kirtland and Rogers, *Introduction to Latin.*
9. Nutting, *A Latin Primer.*
10. Bennett, *First Year Latin.*
11. Montgomery, *A Year in Latin.*
12. Roberts and Rolfe, *Essential Latin Lessons.*
13. Scott, *Elementary Latin.*
14. Hale, *A First Latin Book.*
15. Moulton, *Introductory Latin.*
16. Janes and Jenks, *Bellum Helveticum.*

DETAILED RESULTS OF STUDY OF 16 FIRST-YEAR LATIN BOOKS

Number of Lessons Spent On.	Number of the Book Examined																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Tot.	Av.
1st declension	4½	2	2	1	2	3	1	1	1	1½	2	1	1½	1½	2½	2	29½	1.8
2nd declension	3½	4	2	2	4	4	2	2	3	1½	4	1	2½	2	2	3	42½	2.7
3rd declension	4	3	5	3	9	4	3	5	2	4	13	3	5	5	5	4	77	4.8
4th declension	1	1	1	1	1	1	½	1	1	½	1	1	1	1	1	1	15	1.0
5th declension	1	1	1	1	1	1	½	1	1	½	1	1	1	1	1	1	15	1.0
1st conjugation	3½	2	2½	2	6	4	2½	2	1	½	3	1	3	3	3	1½	42	2.6
2nd conjugation	3½	2	2½	1	4	1	1	2	6	1	1	1	3	3	3	1½	36½	2.3
3rd conjugation	2	2	2	2	4	2	1	2	1	1	2	1	2	2½	2½	1½	30½	1.9
4th conjugation	1	2	2	1	2	1	1	2	1	1	1	1	2	2½	2	1½	24	1.5
Verb—*Sum*	2	3	2	1	1	2	2	2	5	1	1	2	1½	1	2	2	30½	1.9
Demonstrative Pronoun	3	2	2½	1	2	2	1	2	1	1½	½	3	2½	2	2	3	31	2.0
Interrogative Pronoun	1	½	½	1	½	0	½	1	1	½	½	½	1	½	½	½	10	.6
Relative Pronoun	1	½	½	1	1	1	½	1	1	½	2	1	1	½	½	1	14	.9
Personal Pronoun	½	½	½	1	1	½	1	1	3	½	½	½	1	½	½	½	13	.8
Reflexive Pronoun	½	½	½	½	½	½	0	½	½	½	0	½	1	½	½	½	8	.5
Intensive Pronoun	0	½	½	½	½	½	½	½	0	½	½	½	½	½	0	½	6½	.4
Indefinite Pronoun	1	1	½	1	1	1	1	1	0	½	½	½	1	1	1	1	13	.8
Adj. 3rd. dec.	1	1	1	2	3	2	1	1	1	1½	1	1	2	2	1	2	23½	1.5
Possessive Adj.	1	1	1	1	½	1	½	1	½	½	½	½	½	1½	½	½	12	.8
Comparison Adj.	3	4	2	2	2	2	2½	2	1	2	1	2	2	1	2	2	32½	2.0
Irregular Adj.	1	1	3	1	1	1	1	1	½	½	½	1	1	1½	1	1	17	1.0
Comparison Adv.	1	1	1	1	1	1	1	1	½	1	½	1	1	1½	1	2	16½	1.0
Passive Voice	3	4	4	4	9	3	5	6	4	5	4	3	4	5	2	5	70	4.4
Subjunct. Mood	2	6	5	6	6	4	4	5	4	4	5	3½	8	4	3	2½	76	4.8
Numerals	2	2	2	1	1	1	½	2	2½	1	½	1	1	1	1	1	20½	1.3
Participles	3	1	2	1	1	2	1	1	2	2	2	2½	5	2½	2	2	32	2.0
Gerund	1	½	1	1	1	1	½	1	½	0	2	1	2	1	½	1	15	1.0
Supine	1	½	½	0	1	½	½	1	0	0	1	1	1	0	½	1	9½	.6
Deponent Verbs	1	1	1	1	2	1	1	2	1	1	2	1	3	1	1	0	20	1.3
Irregular Verbs	2	3	4	2	4	3	2	4	6	5	1	3	7	3	3	2½	54½	3.4
Periphrastic	1	0	½	1	1	1	½	0	0	1	0	1	0	1	0	1	9	.5
Impersonal Verbs	1	0	1	1	½	½	0	0	0	1	½	0	1	0	1	1	8½	.5
Imperative Mood	½	½	½	1	1	1	½	1	1	1	1	1	2	1½	2	1	16½	1.0
Adj. 1st and 2nd dec.	1	1	1	1	1	1	1	1	2	2	2	4	2	1	1	2	23	1.5
3rd. conj. verbs *io*	½	1	½	1	1	½	1	1	2	1	0	1	1	1	1½	1	15	1.0
Compounds *Sum*	1½	1	2	1½	2	1½	1½	1	1	1	½	1	1	1	½	½	12	.8
Infinitive	1	1	1¼	1	1	2	1	1½	1	0	2	2	2½	1½	1	1	21	1.3

each topic. This was done by dividing the total number of lessons by sixteen, which was the number of books investigated. To illustrate, when the total of thirty-two lessons on participles was divided by sixteen, it gave an even two lessons as the average number of lessons on participles. The fourth declension had an average of one lesson per book, etc.

The table given here shows the detailed results of the study of the sixteen first year Latin books. It gives the distribution of the lessons on each topic in the different books, and also shows the total number and the average number of lessons spent on each topic.

These averages then were arranged in ascending order. Under such arrangement, intensive pronouns was the topic coming first in the list. It had an average of four-tenths of a lesson per book. The topics, *subjunctive mood* and *third declension* came last with an average of four and eight-tenths lessons per book. The other topics ranged all the way between these two allotments.

This arrangement clearly showed that a great number of the topics received only a small amount of attention in the textbooks. Since the purpose of examining the books was to find out those topics which received the greatest amount of emphasis, it was decided to throw out of consideration all of those topics which had an average of less than two lessons. Although two of these topics, the verb *sum* and the *third conjugation*, did not have exactly two lessons per book, they came so close to the requirement that they were included. This step left twelve of the original forty topics as follows:

Topic	*Av. No. Lessons*
Verb *sum*	1.9
3rd conjugation	1.9
Demonstrative pronouns	2.0
Comparison of adjectives	2.0
Participles	2.0
2nd conjugation	2.3
1st conjugation	2.6
2nd declension	2.7
Irregular verbs	3.4
Passive voice	4.4
Subjunctive mood	4.8
3rd declension	4.8

Using these twelve topics as a basis, a list of fifty words was drawn up. Each topic was represented in the list by a number of words proportional to the average number of lessons which it had received in the textbooks. The number of words that each topic received follows:

Verb *sum*	3 words
3rd conjugation	3 words
2nd declension	3 words
Demonstrative pronouns	3 words
Comparison of adjectives	3 words
Participles	3 words
2nd conjugation	3 words
1st conjugation	4 words
Irregular verbs	5 words
Passive voice	7 words
Subjunctive mood	7 words
3rd declension	6 words

This list of fifty words was plainly an unwieldly affair. There were too many words in it. By a careful combination of the first, second and third conjugation forms with the passive voice and the subjunctive mood forms, ten words were eliminated, though all the *forms* were retained. The two topics, *participles* and *comparison of adjectives*, were also taken out. Their presence in the list greatly increased the difficulty of making a satisfactory arrangement of the words on the printed test and only served to make the test clumsy without adding much to its value.

There were other changes made in the list. Two new topics were arbitrarily included, although they did not have an average of two lessons in the textbooks. These two were the *fourth conjugation* and the *fifth declension*.

It is rather difficult to explain satisfactorily why the fourth conjugation was included. A strict adherence to the plan of including only those topics that had an average of two lessons would have certainly caused it to be left out. But it also would have meant that there would have to be included in the list seven more passive voice forms and seven more subjunctive mood forms. The original list of fifty words contained thirty-two verb forms. It was when this list was being cut to a smaller number of words by combining the verb forms that the fourth conjugation was included. It seemed best to have all four of the conjugations represented and consequently the fourth was included.

The fifth declension was placed in the list because of the fact that the fifth declension word *res* is used more than twice as often as any other noun in Cæsar, Cicero, and Virgil. The proof for this statement comes further on in this study.

There were a few other minor changes, being mostly in the number of forms for each topic. As a result of the revision of the list of forms, the following arrangement was made:

1st conjugation	4 forms
2nd conjugation	4 forms
3rd conjugation	4 forms
4th conjugation	2 forms
Verb *sum*	3 forms
Verb *possum*	4 forms
2nd declension	3 forms
3rd declension	6 forms
5th declension	1 form
Demonstrative pronouns	3 forms
Relative pronouns	1 form
Total	35 forms

After it was decided that there should be thirty-five forms divided among the three parts of speech, nouns and verbs, the next step was to decide what cases should be used for the nouns and what tenses for the verbs. There were fourteen nouns and pronouns in the list, but the question was how to divide the cases among them. Again it was decided to adhere to the plan of using only the commonest forms. In this instance it meant using those that occur the greatest number of times in the high school Latin text-books. In deciding this matter use was made of a text* that presents the statistics of syntax in four books of Cæsar, six orations of Cicero, and six books of Vergil. From this book it was found that the different cases have a total number of occurrences as follows:

Nominative	6,088 times
Genitive	3,302 times
Dative	1,672 times
Accusative	9,627 times
Ablative	6,832 times

When these numbers are reduced proportionately to small whole numbers and divided proportionately among the fourteen noun and pronoun forms to be used in the list, the following number of forms to be used in each case is obtained:

Nominative	3 forms
Genitive	2 forms
Dative	1 form
Accusative	5 forms
Ablative	3 forms
Total	14 forms

It was not possible to tell from the data given in the book how many singulars and plurals to use. The question of the number of cases to use with the nouns and pronouns was fairly easy of solution. It was necessary only to turn to the above mentioned book and get the figures that were worked out there. But when the attempt was made to find out what tenses to use with the twenty-one verb forms, a more difficult problem presented itself, since there was nothing in Byrne touching on that point. Finally it was decided that in order to get the necessary information a study would have to be made of the Latin authors read in the high schools.

This plan was to examine the first book of Cæsar, the first oration of Cicero, and the first book of Vergil, with a view of finding out how many times the different tenses occur, and at the same time finding the number of first, second, and third persons, and the number of singulars and plurals. Only the first book of each of these authors was used because it was thought that they were fairly representative of the entire works.

In examining these books the following plan of work was used: Cæsar was taken first. Each verb form in the text was picked out and its characteristics marked down on a score sheet. There were four of these score sheets, one for the indicative-active forms, one for the indicative-passive forms, one for subjunctive-active, and one for the subjunctive-passive.

The indicative-active sheet, for example, was divided into six parts, one part being for each of the indicative tenses, present, imperfect, etc. Each of these divisions was divided into three parts, one part for a check mark to indicate that the verb form was in that tense, another part for the person of the verb, first, second, or third, and the third part for the number of the verb, singular or plural. Each of the other score sheets was arranged in a similar fashion.

Suppose that the verb form being examined was *videbat*. At a glance it could be seen that it would be marked on the indicative-active sheet. Turning to that sheet, a mark would be made in the column for the imperfect tense, another mark in the column indicating the third person, and another in the column indicating singular number. In a similar fashion each verb form in the first book of Cæsar, the first oration of Cicero, and the first book of Virgil was examined and its characteristics marked down.

When this work of examining the individual verbs was finished, the results were summarized. The total number of times that each tense occurred was ascertained, as well as the total number of first, second and third persons, and the total number of singulars and plurals for each tense. The results of this study follow:

TOTAL NUMBER OF OCCURRENCES

Indicative Active		*Indicative Passive*	
Pres.	584	Pres.	112
Imperf.	161	Imperf.	23
Future	84	Future	20
Perfect	341	Perfect	69
Fut. Perf.	13	Fut. Perf.	0
Pluperf.	83	Pluperfect	9

* Byrne, *The Syntax of High School Latin*. University of Chicago Press, 1909.

Subjunctive Active		*Subjunctive Passive*	
Pres.	147	Pres.	26
Imp.	244	Imp.	52
Perf.	20	Perf.	5
Plup.	105	Plup.	17

The ratio of the indicative to the subjunctive was found to be about 2 to 1; of the active to the passive, about 5 to 1; of the singular to the plural about 2½ to 1. The third person was used exclusively in Cæsar, while Cicero and Virgil it clearly was used far more than the first and second persons.

Using the results of the investigation as the basis, therefore, the twenty-one verb forms are divided as follows:

Indicative Active

Present	6 forms
Imperfect	2 forms
Future	1 form
Perfect	4 forms
Pluperfect	1 form

Indicative Passive

Present	1 form

Subjunctive Active

Present	2 forms
Imperfect	3 forms
Pluperfect	1 form
Total	21 forms

In general, then, the thirty-five words are divided into two groups: fourteen nouns and pronouns and twenty-one verbs. These words are divided among the declensions, conjugations, cases, tenses, etc., according to the following scheme which is the result of the investigations made:

NOUNS

2nd declension	3	Nominative case	3
3rd declension	6	Genitive	2
5th declension	1	Dative	1
Demonstr. Pro.	3	Accusative	5
Relative Pro.	1	Ablative	3
Total	14	Total	14

VERBS

1st conjugation	4	*Indicative Active*	
2nd conjugation	4	Present	6
3rd conjugation	4	Imperfect	2
4th conjugation	2	Future	1
Verb *sum*	3	Perfect	4
Verb *possum*	4	Pluperfect	1
		Indicative Passive	
Total	21	Present	1
		Subjunctive Active	
		Present	2
		Imperfect	3
		Pluperfect	1
		Total	21

The nouns are in either the singular or the plural. There was nothing to show how many of each to use. Of the verbs, sixteen are in the singular and five in the plural. Practically all of them are in the third person, as the results of the investigation seem to warrant this.

In deciding what Latin words to use the original plan of using only the commonest forms was applied. In this case it meant the using of those words that occur the greatest number of times in the Latin books usually read in high school.

In determining what these words were, a study was made of a book* that contains the vocabulary of Cæsar, Cicero and Vergil as read by high school pupils. The results of this study are given below. The words that are underscored are the ones that are used in the list of forms. They are the words of most frequent occurrence.

TOTAL NUMBER OF TIMES THESE WORDS OCCUR IN CAESAR, CICERO, AND VERGIL

NOUNS

1st declension.....causa, 145; terra, 131; copia, 114; fortuna, 80
2nd declension.....*bellum,* 270; *locus,* 234; castrum, 184; populus, 169; animus, 159.
3rd declension.....*hostis,* 252; *pars,* 207; *civitas,* 145; *tempus,* 139; legio, 119; pater and virtus, 115.
5th declension.....*res,* 584; dies, 180.

PRONOUNS

Personal.....ego, 584; tu, 495; sui, 688.
Demonstrative.....*hic,* 1323; *is,* 1093; ille, 462; ipse, 354.
Relative.....*qui,* 1850.
Interrogative.....quis, 598.

VERBS

Irregular.....*sum,* 1783; *possum,* 416; fero, 199; volo, 132.
1st conjugation.....*do,* 242; puto, 70; voco, 68.
2nd conjugation....*video,* 250; habeo, 188, teneo, 145.
3rd conjugation.....*dico,* 318; peto, 107; mitto, 203.
4th conjugation.....*venio,* 185.

It will be noticed that in most cases there is only one word underscored in a group of words. This means that as far as possible the same word has been used all through the list. For example, *video* is used for all second conjugation forms, *dico* for all third conjugations forms, etc. This device was used in

* Lodge, *The Vocabulary of High School Latin.* Teachers College, Columbia University, 1915.

order that the test would be purely a test of the pupil's knowledge of *forms*. With each word different there is too much possibility of its requiring also a knowledge of the words.

It might be well to add here that care was taken to include in the list only those forms about which there could be no dispute. It would be entirely unfair to have in the list forms that could be taken as a noun or a verb, as for example, such a word as *reges*. Each word used can be one form and only one.

Using the scheme showing the number of each kind of forms to be used, and using the words that were found to be of most common occurrence, the following list of forms was tentatively drawn up:

NOUNS

2nd declension:	Nominative:
1 locus	1 locus
2 locum	2 pars
3 bellorum	3 hic
3rd declension:	Genitive:
1 hosti	1 hostium
2 hostem	2 bellorum
3 hostium	Dative:
4 pars	1 hosti
5 partem	Accusative:
6 civitate	1 quas
5th declension:	2 locum
1 re	3 eos
Demonstrative pronoun:	4 hostem
1 eos	5 partem
2 hac	Ablative:
3 hic	1 hac
Relative Pronoun:	2 re
1 quas	3 civitate
—	—
Total 14	Total 14

VERBS

1st conjugation:	Indicative:
1 dabat	Present
2 darent	1 dat
3 dat	2 videt
4 putarent	3 dicit
2nd conjugation:	4 est
1 videt	5 sunt
2 videbat	6 veniunt
3 vidit	Imperfect
4 videtur	1 dabat
3rd conjugation:	2 videbat
1 dicit	Future
2 dicet	1 dicet
3 dixerunt	Perfect
4 dixisset	1 videt
4th conjugation:	2 dixerunt
1 veniunt	3 potuit
2 venerat	4 fuit
Irregular verbs:	Pluperfect
sum	1 venerat
1 est	Indicative passive:
2 sunt	Present
3 fuit	1 videtur
possum	Subjunctive active:
1 potuit	Present
2 possit	1 possit
3 posset	2 ferat
4 ferat	Imperfect
—	1 darent
Total 21	2 putarent
	3 posset
	Pluperfect
	1 dixisset
	—
	Total 21

Two methods of listing the words were considered. One plan was to leave sufficient blank space after each word for the pupil to parse it in the regular examination fashion. This plan was rejected because it gave too much of the character of a mixed test of both form and syntax, and the desire was to make this a test purely of Latin form.

The second plan, therefore, was adopted. The accompanying drawing shows how the words are placed and the method of giving the desired information about the forms.

The first column at the left of the page is for the list of forms. In the preliminary form of the test it

Forms	Nouns				Pronouns				Verbs						Score
	Decl	Gender	Number	Case	Person	Gender	Number	Case	Conj	Voice	Mood	Tense	Person	Number	

is expected that these words will be mixed indiscriminately, but in the final form they will be arranged in the order of their difficulty to be determined by experimenting with the test.

The next four columns are for the facts to be given about the nouns, the next four, for the pronouns, and the next six for the verbs. The last column is for the score made in giving the facts for each form attempted.

Thus it is easy for the pupil to give the information with the least confusion. When he decides that the word is a verb form, he at once glances to the group of columns where the verb facts are to be given, fills in the blanks in the order in which he meets them, and goes on to the next word.

The test should not be given to a class until it has had almost a full year's work in Latin. This means that it should not be used until the end of the first year's work. It can be repeated during the second year and can be continued on through to the end of the fourth year. As has been mentioned, the words are ultimately to be arranged in the order of their difficulty, the most difficult words coming at the end of the list. In this manner, and with a time limit, the test can be used with all the Latin classes.

It was the original plan to get the test into such shape by early spring that it could be tried out before the schools closed for the summer. But it was found that it was almost impossible to get it finished, and consequently this work has to be carried over to the next term.

When the test is given at that time, it will be for the purpose of deciding on the order of the words and the value that each word is to have in scoring the results. This value can be determined by the number of times that each word is correctly or incorrectly spotted. It may be necessary to change some of the forms also.

In conclusion, it may be well to emphasize the central plan used in devising the test. Throughout all of the work the idea has been to use only the forms of most common occurrence. The examination of the sixteen first-year Latin books gave the general framework upon which the whole test was built. It gave the number of nouns, pronouns and verbs to use. And these numbers represented as nearly as possible the relative amount of emphasis that the different parts of speech received. It also showed how this emphasis was distributed, more of it being placed on certain conjugations and declensions than on some of the others.

The study of the syntax of the high school Latin books showed the relative emphasis placed on the different cases, and the study of the first books of the different high school Latin texts showed how the relative emphasis should be placed on the different cases, and the study of the first books of the different high school Latin texts showed how the emphasis should be placed on certain tenses and moods and not on others. And finally, the study of the words used in the high school Latin texts gave the words that occur most frequently.

The test as it now stands is the result of all these investigations. It consists of only those forms that from actual occurrence in the texts used in high school Latin, and from the emphasis received in first year Latin books, can be fairly called the most commonly used forms.

Whether a test thus put together and made up can be made of value in testing the pupil's knowledge of Latin forms remains to be seen. Certainly, there is no good reason for any pupil or teacher objecting to the test on the grounds that it contains unfair words or forms. As nearly as it was possible to make it, it is the essence of all the high school Latin forms put into one small list of words. And as such it ought readily to find its place in the rapidly increasing list of scientific tests for measuring the work of the class room.

TRANSPORTATION OF PUPILS IN PITT COUNTY, N. C.

(Concluded from page 216)

depot for the trucks at that station. Garage men, drivers, and the principal of the school were advised that no bills would be paid for supplies of any nature whatsoever unless the driver carried with him written order for same countersigned by the principal. Our plan, in brief, was this:

"If the driver was in need of gasoline, written order was obtained for same from the principal. This order specified the exact amount the driver was to receive. A duplicate of this order was kept on file in the principal's office. Upon the delivery of the original order, the driver received his gasoline from the garage. Original order was filed and attached to statement for supplies for that particular truck when it was sent to the principal at the end of the month. The principal of the school then checked both the original order and the items listed on the account with duplicate orders on file in his office. No items were paid for unless original order authorizing the same was found. We found that by adopting this plan, we saved a considerable amount."—SUPT. R. G. FITZGERALD.

From bulletin on "Consolidation of Schools and Cost of Transportation," published by the State Department of Education, Ralengh, N. C.

MORAL EDUCATION IN SECONDARY SCHOOLS

(Concluded)

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THE REPORT of the international inquiry, written by Prof. Sadler, reveals the wide divergences of views regarding moral instruction in secondary schools. These divergencies occur particularly over the questions of sanctions, the relation of moral to religious instruction, and the value of direct versus incidental teaching and training. However, there is general agreement that moral instruction should be given somehow and somewhere, usually in the schools; that the teacher should be specially trained and should possess personality, because the success of any system of moral instruction depends primarily upon the personality of the teacher.

Thus the problem of moral education still remains unsolved as far as anything approaching a universally acceptable plan is concerned. No country has worked out a system that produces the results imperatively needed. No school has evolved a plan that can be adopted generally. In the meanwhile, speaking from the standpoint of our own country and state, we may safely assert that there was never a greater need than now for some means of developing character. The increasing complexity and demands of life are bringing new temptations with no corresponding increase in moral strength to resist them. We need to elevate the moral plane; for immorality is so general that it is a dangerous factor in our social and political life. Isolated attempts are being made by ethical societies in New York, California, and elsewhere to arouse interest in moral education. The National Educational Association is recommending that more emphasis be placed upon moral education in the schools. Says a report issued in 1918 by a commission representing this association: "To consider moral values in education is to fix attention upon what should be the paramount aim. A schooling that imparts knowledge or develops skill or cultivates tastes or intellectual aptitudes, fails of its supreme object if it leaves its beneficiaries no better morally."

The problem is now generally recognized as an educational one, and is increasingly devolving upon the public schools. Why? Because the home has lost much of its oldtime moral influence. Modern occupations draw parents from the home more than ever before, and the rush of affairs is causing parents to neglect their children and to to leave them more and more to the schools. The churches have also lost much of their moral influence, except in a few rural communities. People living in cities do not attend church regularly and reverently as did our predominantly rural ancestors, consequently children are now much less influenced by the religious atmosphere of the church than of old. The Sunday schools are doing a great work here, but they are inadequate because they do not reach all the children, and because the lessons are too infrequent.

The problem of moral education in the public schools is as complex as life itself. Scholarly men are advancing so many conflicting theories on the subject that its seems impossible to devise any scheme that will meet anything like universal approval. It will be of interest to note here some of the theories set forth.

A plea in favor of moral education was made as far back as the time of Socrates. This philosopher pointed out that the way to prevent instruction from becoming a weapon in the hands of crime would be to allot a far larger share in education to moral and aesthetic than to intellectual and scientific instruction. Guyau, a French writer, declared that the moral sense is a higher product of education. President Hall holds that there should be religious instruction in our schools, and moral instruction for every grade according to a prepared manual. Prof. Karl Pearson believes that mental and moral qualifications are inherited in the same degree as physical qualities. Dr. P. A. Parsons believes that "Education softens and curbs savage instincts." Prof. Saddler writes: "In all countries from which we have received reports, those who have special knowledge of social needs regard the moral influence which may be exerted by the schools as of prime importance. The question of moral education is the heart of the modern educational problem. If this is neglected, education is a peril." Robinson says: "Education without moral training may increase evils to the state by increasing the capacity for crime."

Other thinkers seem to doubt the wisdom of attempting direct moral instruction in the schools. To quote Dewey: "Direct instruction in morals has been effective only in social groups, where it was a part of the authoritative control of the many by the few. . . . To attempt to get similar results from lessons about morals in a democratic society is to rely upon sentimental magic." Palmer declares: "Morality does not take its rise in knowledge. . . . The boy may be

trained in ethics; this training yields ethics, not morals. . . . . Ethics should be taught in college, not in the [Secondary] schools. . . . What children need is right habits, not an understanding of them."

In the United States, the concensus of opinion opposes religious instruction in the public schools. Many contend that morality cannot be taught; some even claim that a child is born with moral attributes that cannot be changed by education. Others point out that misconduct and crime apparently thrive on education, since statistics indicate that the most enlightened countries of Europe show the greatest increase in crime.

In order to reconcile the divergent views on religious training in schools, Professor Felix Adler suggests three possible plans. These are: (1) Let representatives of the various churches meet in council. Let them eleminate all those points in respect to which they differ, and formulate a common creed containing only those articles on which they agree. Upon this as a foundation, let the edifice of moral instruction be erected. (2) The second plan provides that religious and moral instruction combined be given in the public schools under the auspices of the several denominations; (3) "Let each sect build its own schools, and draw upon the fund supplies by taxation proportionately to the number of children educated."

Professor Adler himself objects to all these plans and advocates the following: "It is the business of the moral instructor in the school to deliver to his pupils the subject-matter of morality, but not to deal with the sanctions of it; to give to his pupils a clearer understanding of what is right and what is wrong, but not to enter into the question why the right should be done and the wrong avoided. . . . The right to reason about these matters cannot be conceded until after the mind has attained a certain maturity."

Many people will not accept Prof. Adler's propositions as to religious training, and still more are divided on the other aspects of moral education. In order to ascertain the best plan, and one that will be acceptable to the general public, many experiment schools should be established to deal with the problem scientifically. The state should take the matter in hand; for surely it must be as interested in educating its boys and girls scientifically as it is in breeding plants and animals.

If we are to regard moral education as of prime importance in my opinion the subject should receive direct treatment. Under the present system of incidental moral instruction, far too little is accomplished. The maxim, "What is everybody's business is nobody's" still holds true. We should have both direct and indirect moral instruction. This must be adapted to the individual pupils, as far as possible; to the social needs; and to the environment. Moral education, which I take to mean ethical instruction that functions in right conduct, that is adapted to an industrial community will not fit children of a rural community, and vice versa. Different environments furnish different stimuli and produce different reactions. Prof. Parsons declares that "man is at any moment the sum of all his previous experiences, and his responses to stimuli are colored by that experience." Education influences and modifies one's experiences; therefore it must be a determining factor of what a man is, morally and otherwise, at any period of his life.

That education and a morally healthful environment prove effective is shown in the records of our reformatories. 78.5 per cent of those dismissed from Elmira lead orderly lives afterwards, according to records kept by the reformatory. If 78.5 per cent of convicted criminals can be reformed through education and a controlled environment, it seems reasonable to assume that the proper kind of training will prevent boys and girls from becoming criminals.

I would not suggest that we load the pupil with impracticable ethical principles. We should give him moral rules of conduct for his guidance, just as we give him rules for his other duties. Many a boy has fallen because he was ignorant of the moral law, and had never been taught to practice ethical rules. The problem, of course, offers grave difficulties. The psychologist and psychiatrist must be called in, and individual differences and peculiarities must be dealt with scientifically as well as pedagogically. If we can give the child positive interests and motives, and make him want to be good, a correct attitude, mind-set, or whatever it may be called, will result. The best methods of achieving this happy result must, of course, be worked out by laborious effort and thorough investigation.

With reference to religious instruction in our schools, if public sentiment is aroused to a true realization of the gravity of the problem the divergent views will be reconciled or modified to such an extent that a satisfactory compromise will be evolved. It seems that the various churches could agree on certain Biblical truths to be taught, and, if no other practicable alternative presents itself, these principles could be taught without reference to the Bible. For instance, the substance of the Golden Rule can be taught without showing its Biblical origin.

The problem of moral education is so complex and of such tremendous consequence that it cannot be solved in a day or a month. It will require years of patient research and toil by men and women of cour-

age, tact, resourcefulness, and breadth of vision. But, however long and costly the struggle, the laurels of victory in such a glorious cause will prove a full measure of reward to those who solve the problem.

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THE EDUCATIONAL VALUE OF THE HOME

By JOHN J. BIRCH, Pd.B.
Schenectady High School, Schenectady, N. Y.

AS A RESULT of economic and social conditions, the average American home plays a small role in formal education. Children are sent to school as soon as they reach the required age and too frequently come under the tutelage of young and inexperienced teachers, who use the class room as a means of livelihood to bridge the time between maidenhood and marriage.

Education naturally begins with the relation of parents to children. The human infant is physically and mentally the most helpless of all creatures, and has in proportion thereto the longest period of infancy. Children are born with minds as a "tablet rassa,"—all of the knowledge of language, of science, of social customs and even of ethics and morality, must be acquired by the individual. The infant begins life in total ignorance, having only a potentiality for acquiring knowledge, and in some way that potentiality must be transformed into actuality. That is really the function of education,—to harmoniously develop all the inherent powers of the individual to the end that he may become masterful in his environments and aid in the formation of a good character.

The home naturally becomes the source from which the infant first obtains its knowledge of exterior things, and because of the long period of infancy, the pedagogical relations between parent and child is one of vital importance. It is invariably true that a child learns more of fundamental value in the first six years of life, than in all of its subsequent years. The simple rudiments of living, the axiomatic truths of life, and the basis of morality which are inculcated during these first years will remain with the individual, and shape his character for all his remaining years. The child regards the tenets of its own parents as infallible truths. What children learn in the home thus comes to have an unchallenged authority over their thought and lives.

But the lamentable fact is that as soon as children acquire a sufficient age to enter the public institutions of learning, the parents shift the responsibility for further instruction upon the teachers in the school and trust to their methods and judgment for further development, seldomly inquiring as to what the schools are doing with their children or what progress is actually being made.

A REFORM IN EDUCATION

No greater reformation in education is possible than in reëstablishing the custom of parental instruction. There is no reason why the average American family should not be made the most efficient and economical agency of elementary culture.

In previous time, when the home was the only source of primary education, the colleges and institutions of higher learning received students with intellects more keen and reasoning faculties more alert than they are now receiving from many of our public schools. Their sum total of facts might have been less; but that which had been acquired was gained by experience and had become deeply implanted. The power of reasoning

had become more developed,—the young people depended more upon reason and experience to solve their problems than upon a vast accumulation of specific memorized facts. The ability to think and reason was paramount, and education was more a matter of quality than quantity.

The American people are spending millions of dollars every year for the instruction of children in certain practical vocations that should be learned in the home and with greater ease and proficiency than in the school. Girls are being taught the rudiments of domestic science, while at home their own mothers are cooking the family meals and replenishing the wardrobe. The school cannot take into account the finances of the individual family with the result that when the girl attempts to carry out her school instruction on a small family purse, she is disappointed. She does not know the economy and frugality as practiced by her mother, because her instructors have not taken these factors into account.

It is an anomalous state of affairs for boys to depend on technical instruction to acquire the elements of successful farming or kindred vocations. The average farmer does not possess the vast store of tools and implements in possession of an agricultural school, with the result that the average farmer must depend upon his ingenuity to make one tool perform many tasks.

The farmer lad learns many things from practical experience which serve him in the hour of need. The small child making his own wagons and toy houses, occasionally supervised by his father, is acquiring a vast store of practical experience which cannot be measured by days or months in college. He is learning to use a hot iron to make a hole if he does not possess an auger and an axe to smooth a board if he does not have a plane. His finished product may not be as smooth and neat as if he had had a more elaborate supply of tools, but he has learned to think,—to meet the problems of life and solve them with materials at hand.

Individual Instruction

The home, in its relation to the training of children, has fallen into a stultifying lethargy. It was once the custom of parents to give instruction both in secular and religious subjects; but many mothers have become so engrossed in social matters, and fathers so bent upon pleasure seeking after the hours of labor that little time is left for the children. Some parents, however, are doubtless inevitably intellectually incompetent to care for their children's education and of necessity must send them elsewhere to be taught; but that is no excuse for not taking an interest in the child's welfare.

If parents could be properly enlisted in the instruction of their children a new and intense bond of sympathy and mutual interest would be established. The estrangement which often exists between father and son would disappear; the parent would come to know the real needs of their children, and become better able to aid them wisely in all things. They would become the worthy guides and leaders of their children's minds and in turn furnish them with more intimate, systematic and effective instruction than is possible in any other way.

Parental instruction would make possible individual instruction which is the ideal means of education. By this method, the individual mind is allowed to unfold and progress in a normal and natural way witnout undue stress or restraint. Under such instruction the mind of the child may dwell as long as necessary upon any given part of a study until it is thoroughly mastered, which is impossible to do in the group system of our public schools. Individual instruction in the home gives the child the right to advance normally and naturally, which will ultimately result in better mental achievement. In the end the progress would be more rapid because of the thorough mastery of the antecedent steps and rudiments of any subject. A firm foundation would be builded before additional superstructure placed thereupon. This makes possible far greater achievements by the individual than in any other way, for where confusion enters, there mental disaster begins. A thorough mastery of each step is the only assured way of mental progress. No mind has a right chance except by moving forward naturally when fully prepared in the prerequisite stage of any given subject. In the schools, some pupils must be urged forward beyond their real ability or qualifications at the time and others held back from advancement in accordance with their normal possibilities.

The Joy to the Parents

To parents who understand the real meaning of parenthood and are willing to accept its responsibilities, there should be no pleasanter task than to guide the gradual unfolding of the child's mind. Parents could spend many pleasant and profitable hours with their children if they could see a vision of the great work they were doing.

The parental supervision of children would also intensify the spiritual life of the family and thus make it a more ideal environment in which the child may grow up. The intellectual improvement of the home is almost sure to result also in moral improvement and

(Continued on page 235)

THE HIGH SCHOOL JOURNAL

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EDITORIAL COMMENT

Here's wishing each and all a Merry Christmas and a Happy New Year.

This number concludes our fifth volume.

Our January number will be a special number devoted in the main to Measurements in Secondary Education.

Moral Education

The discussion of "Moral Education in Secondary Schools," concluded in this issue, points out again the universally recognized importance of building moral quality in public school pupils, and the wide differences of opinion as to the best means for accomplishing this purpose. Perhaps a considerable number of the difficulties in the way of agreement as to methods would disappear if more exact definitions of moral characteristics were first agreed upon.

The use of so-called intelligence tests has demonstrated that pupils of the same age, or of the same school grade, differ widely in their abilities to recognize and act upon the relations, meanings, and implications of the things they read. No doubt there are just as great differences in their abilities to recognize the social significance and consequences of their own acts. An enormous amount of effort is probably wasted by attempts to base moral habits and feelings on intellectual discriminations which are not even possible in the pupils taught. Relative moral worth in an individual is not measured by the extent to which he is less responsive than the average person to the social significance of his conduct, but by the extent to which he is less responsive than others who have the same degree of intellectual appreciation of the implications of that conduct.—M. R. T.

The Lohr Latin Form Test

We are reprinting in this number the Lohr Latin Form Test which was first published in the columns of THE JOURNAL in November and December, 1918. Our supply of those two issues has long since been exhausted, and requests for them continue to come. It is in response to this demand that we are reprinting the test in its original form. In this connection it should be added that the the Lohr test was used as the basis of the Lohr-Latshaw test recently published by the School of Education of the University of North Carolina.

The Exceptional Challenge in N. C.

The outlook for the trained worker in the field of education was never better in North Carolina than at present. The people of the state have by their votes ratified every big constructive program for education that has been submitted to them within the past decade. They have realized that in order to provide adequate educational facilities for the youth of the state they must spend vast sums of money, and this they have resolved to do. Moreover, they have realized that the business of education has grown to such proportions and has become so complex that trained educational experts have become necessary. And further they have shown a willingness to follow intelligent educational leadership. They are no longer willing to trust to untried and untrained people the responsibility for directing the expenditure of the vast sums of money that they are now investing in education, for they know that such persons are not capable of investing these funds or directing the expenditure of them wisely and economically. They have had it written into the law, therefore, that those who direct the educational work must be trained for their jobs, because they have realized that the work of directing the education of the youth of the state is too important and too fundamental a matter for the welfare and progress of the commonwealth to leave it to the direction of people untrained for the task. And so the positions of educational responsibility in North Carolina—and they are many—are no longer open to the novice, the untrained, the inexperienced. Herein lies a great opportunity for young men of ability and character who are willing to equip themselves for big jobs in the educational field. Here is a real challenge to the young men and young women of North Carolina. Will they accept it?—N. W. W.

THE ENGLISH TEACHERS COLUMN

[Conducted under the Auspices of the North Carolina Council of English Teachers by Miss Eleanor Stratton, Head of the Department of English in the Asheville High School.]

MR. C. A. HIBBARD, Chairman of the Committee on Minimum Essentials of English Composition, sends us the following good news:

1. The state committee reporting on high school course of study adopted the minimum essential report we made for high schools and that part of our program is already printed in the *North Carolina High School Manual*. Negotiations are under way for printing the whole minimum essential schedule completely.

2. Three state colleges have voluntarily agreed to make a statement in their catalogues to the effect that they want their students to have met the requirements of this minimum program. Other colleges, no doubt, fall in line.

We owe it to Mr. Hibbard also that we have the following poem to insert:

Poems for Special Purposes

POEMS EMPHASIZING COURAGE AND PERSEVERANCE UNDER DIFFICULTIES

The Kings—Louise Imogen Guiney.
The Frozen Grail—Elsie Barker.
Euchenor Chorus—Arthur Upson.
All of the above found in Rittenhouse's "Little Book of Modern Verse."

Worthiness—O'Malley. In "Songs of the South."
Work—Angela Mosgon.
Columbus—Joaquin Miller.
Both found in Richard's "High Tide."

Heaven Is Not Reached in a Single Bound—Holland. In "Poems Every Child Should Know."

POEMS WHICH EMPHASIZE MAKING USE OF OPPORTUNITIES

Opportunity—Sills' Poems.

The Narrow Window—Coates. In Richard's "High Tide."

Home Reading Lists

I do not know whether all teachers are familiar with the "Report of the Committee on Home Readings," published by the National Council of Teachers of English, but it is a sixteen page pamphlet giving a fairly comprehensive list of books suitable for home reading for high school students. It is well worth the ten cents charged for it. The fiction list is good and covers a wide range. The drama and essay list could be improved by broadening the scope of the reading. There are a number of good essays and dramas which appeal to high school students which might be profitably added to these two lists. The same might be said of the poetry list. Why should Masefield and Noyes be the only two poets of today suggested for high school reading? There are certainly a few other modern poets or if you prefer the term present-day poets, well and good, I should not quarrel with you over the title—whose works appeal to high school students. When the seventeenth impression is made (the one I have at hand is the sixteenth impression of August, 1922), I hope these three lists will be considerably enlarged.

Meeting of National Council of English Teachers

Do not forget the meeting of the National Council of English Teachers at Chattanooga during Thanksgiving. This is the first time that the Council has met at a place near enough for it to be convenient for North Carolina teachers to attend. Let us show our appreciation by sending a big delegation to Chattanooga

at Thanksgiving. If you are thinking of going, write for particulars to the National Council of Teachers of English, 506 West Sixty-ninth Street, Chicago, Illinois.

Editor's Apology

I think I hear someone saying that he thought that the English Column was to be run for the benefit of all teachers of English. Yes; the editor realizes fully that that was the intention of the English Council when the appointment was made; but please remember the editor is a high school teacher and unless college and elementary teachers send her material for the column, she will naturally follow the line of least resistance and make the column perforce a high school English teachers' column. We wish to thank Professor Hibbard for the first contributions to the column.

THE SPANISH COLUMN

Conducted By DR. S. E. LEAVITT

THE ANSWERS to the questionnaire sent out this fall have been most encouraging, and, as was to be expected an increase in the number of students has been reported. It is also significant that a large percentage of the students who graduated from high school last June entered college this fall. The answers to the question regarding grammars show that *Hill's and Ford's* is by far the most popular grammar in the state, while *De Vitis* is favored by three schools and *Espinosa and Allen's Grammar* by a like number. The texts used in reading are as varied as can be imagined, no two schools being in agreement on this point.

Twenty-three schools have sent in reports.

Alexander Graham High School, Charlotte, Mrs. Elizabeth Hoyle Rucker and Mrs. Helen Laughlin—275 students.

Ashboro High School, Grace Frazier—47 students.

Asheville Normal, Delfido Córdova and Esther Daw—14 students.

Asheville School for Boys, E. E. Greenwood—35 students.

Blue Ridge School, F. L. Blythe—17 students.

Broadway High School, E. H. Crain—33 students.

Davidson College, Prof. Fred K. Fleagle and Mr. Augusti V. Goldière—275 students.

Elon College, Victor M. Rivera and Miss Alice Barrett—32 students.

Flora McDonald College, Mrs. C. W. Ewing—80 students.

Greensboro College, Elizabeth Weber—35 students.

Guilford College, Hedwig H. Hoffman—23 students.

High Point High School, Carolyn Crool—115 students.

Louisburg College, Josie Foy—17 students.

Mars Hill College, Cornelia Howell—83 students.

North Carolina College for Women, David R. Touriel—175 students.

North Carolina State College, Prof. L. E. Hinkle and O. V. Wilson—104 students.

Oak Ridge Institute, W. F. Lewis—20 students

Oxford High School, Lina Pruden—46 students.

Queens College, Anna West—70 students.

Reidsville High School, J. Minor Gwynn—129 students.

Salem Academy, Mrs. L. L. Wenhold—21 students.

Scotland Neck High School, Elizabeth Kitchin—10 students.

Trinity College, Prof. Manuel Lopez—100 students.

University of North Carolina, S. E. Leavitt, A. A. Shapiro, Herman Staab, F. J. Hurley, T. M. McKnight and W. A. Pickens—317 students.

Wake Forest College, Prof. J. H. Gorrell, Asst. Prof. P. H. Wilson—72 students.

Warrentown Graded and High Schools, Gladys Gordy—9 students.

The report of a large number of students entering college this fall with credits in Spanish brings up the question of a closer contact between the college and the preparatory school. The high school teacher's interest in the student does not, and should not, cease

Singing at the beginning or close of the lesson gives added interest. There is a booklet of songs in Spanish containing *America, Red, White and Blue,* the *Rosary,* many of our familiar hymns and several Spanish songs, among them *La Paloma* and *La Golondrina.* This booklet also contains parliamentary terms for Spanish clubs. It may be had in any quantity from A. E. Miller, Belton, Texas.

A good plan for using the questions which occur in most of the Spanish readers is to let every other student ask the questions of his neighbor. Then reverse the procedure. In this way every student has asked and answered every question within a few minutes. The *teacher* then asks the questions, grading the answers.—Cornelia Howell.

THE MATHEMATICS COLUMN

Conducted By DR. JOHN W. LASLEY
Department of Mathemathics, University of North Carolina

The advancement and perfection of mathematics are intimately connected with the prosperity of the State.—*Napoleon I.*

ONE OF THE things that the column desires to do is to get the teachers of mathematics in the state better acquainted. To this end it will tell from time to time who the teachers of mathematics are and where they teach. If you are a teacher of mathematics, watch this column for your name. If it does not appear, write us, and we will see that it does. Here are the ones we introduce in this issue:

Miss Linda Newton, Lumberton.
E. L. Ponder, Mars Hill.
Miss Pearl Cornwell, Kings Mountain.
Miss Mary Holliday, Mount Airy.
M. J. Davis, Williamston.
Miss Vera McBane, Forest City.
B. S. Whiting, Tarboro.
Miss Vera Draper, Lillington.
Miss Mabel Higg, Franklinton.
Miss Hallie Beavers, Siler City.
T. D. Stokes, Lexington.
E. T. Hines, Lexington.
C. L. Green, Maxton.
Miss Mildred Mendenhall, Oxford.
Miss Edith Mann, Oxford.
W. S. Livengood, Oxford.
John G. Barden, Rocky Mount.
Miss Margaret Hicks, Rocky Mount, R. F. D. 2.
Miss Sarah Lee Brock, Rocky Mount.
Miss Juanita Puett, Laurinburg.
C. E. Wessinger, Raleigh.
P. S. Daniel, Raleigh.
Miss Laura Efird, Raleigh.
Milton Targan, Raleigh.
Miss Effie Newton, Fayetteville.
Miss Della Dodson, Fayetteville.
Miss Pencil Warren, Edenton.
H. A. Manney, Macon.
E. L. Parker, Roxboro.
Miss Lucy Farland, Weldon.
Mrs. Graham York, Harmony.
R. H. Lankford, Harmony.
Miss Lorena Terry, Elm City.
Mrs. M. F. Franks, Smithfield.
Miss Mattie McArthur, St. Pauls.
Miss Mattie Allen, Louisburg.
W. R. Mills, Louisburg.
J. A. Hornaday, Elon College.
C. B. Thomas, Clinton.
Miss Eva Culbreth, Clinton.
Miss Julia Groves, Salisbury.
Miss Florence Wharton, Salisbury.
Miss Jessie Thompson, Salisbury.
W. M. Pickens, Salisbury.
Miss Nellie Cobb, Goldsboro.
Miss Lily Walker, Goldsboro.

The column will continue this list in the next issue.

There have been numerous inquiries as to what books a teacher of mathematics should have access to. Among the lists of mathematical books the following will be found useful:

"A Brief List of Mathematical Books Suitable for Libraries in High Schools and Normal Schools." This pamphlet was published in 1916 by Teachers College, Columbia University. The column would judge that copies can be had free of charge by writing to any one of the three authors, D. E. Smith, C. B. Upton or W. E. Breckenridge.

"A List of Mathematical Books for Schools and Colleges." This appeared in the *American Mathematical Monthly,* Vol. xxiv, Oct., 1917. It was issued later as a pamphlet reprint, and can be obtained perhaps from W. D. Cairns, Oberlin, Ohio.

For the benefit of those readers of the column who may not be able to get in touch with these lists, the following list is appended:

Fine. "The Number System of Algebra, Treated Historically and Theoretically." (Heath)
Fine. "A College Algebra." (Ginn)
Bocher. "Introduction to Higher Algebra." (Macmillan)
Casey. "Sequel to Euclid." (Longmans)
Durell. "A Course in Geometry for Advanced Students." 2 vols. (Macmillan)
Klein. "Famous Problems of Elementary Geometry." (Ginn)
Hobson. "Treatise on Plane Trigonometry." (Cambridge University Press)
Salmon. "Conic Sections." (Longmans)
Smith. "An Elementary Treatise on Conic Sections." (Macmillan)
Smith. "An Elementary Treatise on Solid Geometry." (Macmillan)
Byerly. "Differential Calculus." (Ginn)
Byerly. "Integral Calculus." (Ginn)
Peirce. "A Short Table of Integrals." (Ginn)
Salmon. "Analytic Geometry of Three Dimensions." (Longmans)
Snyder and Sisam. "Anlytic Geometry of Space." (Holt)
Cohen. "Differential Equations." (Heath)

In the next issue this list will be continued, and will include books on the history and teaching of mathe-

matics together with books important, though miscellaneous in character.

With the increase in the number of school libraries the question of what journals to have becomes important. In the opinion of the column the following three mathematical journals meet the needs of the teachers and students in the high schools:

"The Mathematics Teacher." This journal is published by the National Council of Teachers of Mathematics at 55 Main Street, Yonkers, New York. It appears eight times a year. The subscription price is two dollars.

"The American Mathematical Monthly." This journal is the official journal of the Mathematical Association of America. It is published by the association monthly at Lancaster, Pa. The subscription price is five dollars a year.

"School Science and Mathematics." Published at Mount Morris, Ill.

The column wishes through its readers to propose and discuss problems. To get this phase of our common interests started a few problems are herewith set forth. If you are interested in them, solve them, and send your solutions directed to The Mathematics Column, THE HIGH SCHOOL JOURNAL, Chapel Hill, N. C. If they don't interest you, send in some to the column that do. It is likely they, yours, if not these, will interest some other reader. The student and teacher of mathematics are continually coming across interesting problems in all sorts of connections. Won't you give us all the fun of trying our hand on them?

Problem 1. Mary is 24 years old. Mary is twice as old as Ann was when Mary was as old as Ann is now. How old is Ann? (This is an old and famous problem, but a good one. There is a tradition that men have lost their minds over it. See what luck you can have with it.)

Problem 2. How can you make up a dollar, using fifty coins? (Two-cent pieces debarred.)

Problem 3. A farmer buys wheat at 90 cents a bushel. He sold 3-4 of it for 33 1-3 per cent gain, and the rest at a loss of $25. How many bushels did he buy?

Problem 4. To construct a point whose distances from three fixed lines shall be proportional to three given lengths.

Problem 5. Solve for x and y:

$$xy = x^2 - y^2$$
$$x^2 + y^2 = x^3 - y^3$$

The North Carolina Association of Teachers of Mathematics will meet at the University of North Carolina early in February. More definite announcement of the meeting will be made in our January number.

BOOK NOTES AND REVIEWS

POR TIERRAS MEJICANAS. By Manuel Uribe-Troncoso. 179 pp. World Book Co. Yonkers-on-Hudson.

While a goodly number of excellent texts dealing with South America have been published there has been no suitable text book about our next-door neighbor, Mexico. Señor Uribe-Troncoso, a Mexican and former professor in the University of Mexico, has filled this gap in publishing *Por tierras mejicanas.* This book provides abundant information about the geography, history, agriculture and customs of Mexico and in the last chapter brings out the problems which that country is facing to-day. The volume is written in a style, clear, lucid and literary, and yet simple enough to be read in first year college or second year high school classes. There are many excellent illustrations in the text and the vocabulary is full and adequate. Included in the preface is a comprehensive bibliography which should be helpful to teacher and student alike.—Herman Staab.

REPORT OF THE SURVEY OF THE PUBLIC SCHOOL SYSTEM OF ATLANTA, GEORGIA. By the Division of Field Studies, Institute of Educational Research, Teachers College, Columbia University, New York City. Foote and Davies Co., Atlanta, Ga., 1922. Pp. XVIII+260 (Vol. I), and XIII+255 (Vol. II).

If the citizens of the city of Atlanta were desirous of having a forward-looking program for the modern development of their public schools, their hopes have been fulfilled in these two volumes. If they were hoping to have words of praise and commendation for the public school provisions they have already made, these volumes will be disappointing to them. The report gives its chief attention to the things that must be done in order to provide, for the pupils in Atlanta, a modern education under modern school conditions. What has been provided is discussed in great detail, but only for the purpose of pointing out the direction and the distance yet to be traveled. Volume I presents the building program and the data on which it is based. Volume II outlines an educational program, with its supporting data.

The building program provides for ten million dollars worth of repairs, replacements, and construction, in order to bring the present school plant to a satisfactory condition. Additional millions would be needed to provide for the growth in school population that will occur during the next few years. The specific items of needed repair and construction are indicated definitely, and the evidence is produced, not only to show these needs but also to show that Atlanta has the

ability to meet them, if she really cares to provide adequate school conditions.

The educational program provides for the recognition of education as a function of the state rather than of the city, and for the appointment of a board of education that will recognize the folly of attempting to perform the administrative work of a professional school executive. Studies of the progress pupils have made demonstrate clearly that they do not complete the seven year elementary school course in Atlanta in any less time than is required elsewhere for the more usual eight year elementary school course. The K-6-3-3 plan of organization, with a maximum of variety in the junior high school curriculum is strongly urged. Sound recommendations are also made regarding the conduct of school business, enforcement of the attendance laws, improvements in the salary schedule, and the like. Unfortunately no objective measurements were made, in this survey, of the educational achievements of pupils.—M. R. T.

GLEE AND CHORUS BOOK FOR MALE VOICES. By Towner and Hesser.

Silver, Burdett and Co. announce the publication of *Glee and Chorus Book for Male Voices,* by Towner and Hesser. Mr. Towner is Director of Music in the public schools of Fresno, California, and conductor of the Fresno Symphony Orchestra. Mr. Hesser is Director of Music in the public schools of Indianapolis, Indiana, and director of the Indianapolis Community Chorus. Both men are skillful and highly trained musicians who have had wide experience with groups of men's voices, and it is inevitable that their book should contain valuable material for this purpose.

The songs are of many types: folk songs, patriotic and devotional songs, humorous songs, selections from various operas, and part-songs and choruses of various types. The material is of a high order, and contains the best collection for male voices which has come to our notice.

Probably the most valuable feature of the book is to be found in the arrangement of the songs presented. There are unison songs for treble voices, unison songs for bass voices, two-part songs, three-part songs, four-part songs and various provisions for solo voices in connection with choruses.

The range of the songs and the limitations of immature male voices have been carefully considered, so that practically all of the songs in the book are suitable for high school use. At the same time the book has sufficient and varied intrinsic interest to make it suitable for college use and use by mature male choruses.—PAUL JOHN WEAVER.

MANNERS AND CONDUCT IN SCHOOL AND OUT. By the Dean of Girls in Chicago High Schools. Allyn and Bacon, New York, 1921, pp. 28.

This is a little book dealing, as the title implies, with the problem of teaching boys and girls of the high school age correct social and civic habits. The author believes that boys and girls develop correct social habits, just as they develop correct habits of playing outdoor games and sports—by learning the rules. This little book is limited to only a few of the many situations where manners are particularly desirable; but would be useful as a guide in the discussions on manners and conduct.—R. A. D., Jr.

ACTUAL BUSINESS ENGLISH. By P. H. Deffendall, Supervisor of English, Continuation Schools, St. Louis, Mo. The Macmillan Co., New York, 1922. pp. 201.

Most books entitled "Business English" are made up with illustrations taken from literary masterpieces. Not so with this book. Mr. Deffendall's illustrations are taken from the most practical and successful business men in the United States today. The most obvious thing to be noted is that the author has dealt strictly with what the title implies—business English. The author has carefully selected a list of the more common errors of American speech, with the corrected forms. Dr. Charters' study of pupil's errors, and other studies, besides a list of his own have been used in the compilation of this. The main object of the book is the teaching of correct English, and as a foundation for this, the first few chapters are devoted to a general review of some of the more important essentials of grammar. Unity, coherence, and emphasis have been emphasized, as well as the correct usage of English. The aim has been all the way through, to train the student to express himself in clear, concise, and forceful language, both in oral and written expression. This book is intended for any person who desires to learn to use business English effectively, and should make a strong appeal to teachers of Business English in the high school.—R. A. D., Jr.

LECTURAS ELEMENTALES. By Max A. Luria, Head of the Department of Spanish Dewitt Clinton High School, New York City. The Macmillan Co., 1922. pp. 233.

The aim of this volume, according to the author's preface, is to "present a stimulating and interesting medium for greater and more spontaneous activity on the part of the pupil, with the teacher in the background as the guiding force." This is essentially a reading book, and is devised primarily for use in the latter part of the first semester, and the second semester of the senior high school. The reading matter, and the class exercises in connection with it have been planned with the idea of supervised recitation. The book is well planned. It begins with simple, easily comprehended phrases, and gradually works its way into longer and more complicated sentences. The sentences, however, never reach any great degree of difficulty. The verb has been especially emphasized, and the vocabulary is made up of well chosen words.—R. A. D., Jr.

NEW LABORATORY MANUAL FOR GENERAL SCIENCE. By Lewis Elhuff, Science Department of the Westinghouse High School, Pittsburg, Pa. D. C. Heath Co., New York, 1921. pp. 93.

This little manual consists of a large number of projects, to be used in the laboratory in connection with a course of general science. The projects fall into three groups, as follows: (1) demonstrations by the teacher; (2) demonstrations by the teacher assisted by pupils or selected pupils; and (3) individual projects, some of which are to be done in the school laboratory and the others in the home and in the field observing natural phenomena. By reason of the large number of problems offered, this book has an especial advantage, in

that it makes possible the privilege of selection. Naturally, some problems would appeal more to the interest of girls, while others would be of more interest to boys. This manual, while written primarily to meet the demands of Mr. Elhuff's "General Science" can profitably be used in connection with any general science course.—R. A. D., Jr.

COMMA BOOK. By C. H. Ward, the Taft School, Watertown, Conn., and H. Y. Moffet, the University High School, Iowa City, Iowa. Scott Foresman and Co., New York, 1922. pp. 19.

The purpose of this little handbook is to teach the correct use of the comma, intended to be used in connection with "The Junior Highway to English," written by the same authors. It consists of a series of illustrative sentences, showing the many different situations in which the comma is used. The pamphlet is so designed as to give the student a general review at the end of every four or five exercises—thus emphasizing drill, which conforms to the principles of good psychology.—R. A. D., Jr.

RECOMMENDED ENGLISH READINGS FOR HIGH SCHOOLS. Compiled and edited by Rowena Keith Kayes, Head of the Department of English, Hearen High School, New York City. Noble and Noble Co., New York, 1922. pp. 64.

"A great problem in English teaching is the correlating of 'supplementary' or home reading with 'required' reading." To make such reading also harmonize with the pupil's natural bent and become a true cultivation of the love of reading—progressive term by term—this is the newly recognized and baffling objective that English teachers face today. The author's preface gives clearly the purpose for which the book was written. The purpose is to provide for each half year in the four years of the high school course a list of books adapted to the age of the pupils, and so grouped as to suggest a special interest every term. One or two main interests have been assigned to each term to give a certain amount of unity to the reading. These are summarized as follows: 9th year, first half, Chivalry; 9th year, second half, Mythology; 10th year, first half, Shakespeare's Comedies; 10th year, second half, American Fiction and Poetry; 11th year, first half, Essays; 11th year, second half, the 19th Century Novel; 12th year, first half, 20th Century Novel, non-dramatic poetry; 12th year, second half, Modern Drama. Thus it may be seen that these topics have been arranged partly in accordance with the growing capacities of the young people, partly with the purpose of establishing standards, partly in order to group reading about the books prescribed by college-entrance requirements. This book is an excellent guide for both teacher and student of English, and many valuable suggestions are offered to the student for obtaining the best results during his reading hours. —R. A. D., Jr.

HIGH SCHOOL GEOGRAPHY. By R. H. Whitbeck, Professor of Geography in the University of Wisconsin. The Macmillan Co., 1922. pp. 577.

Within recent years, two ideas stand out in the discussions of secondary school geography: (1) "that the geography of the secondary school ought to be humanized; (2) that the influence of geographical environment upon man's mode of living, and upon his principal activities should always be in the foreground." Accepting these ideas, the author has undertaken to provide a brief course in geography in harmony with them. He looks upon geography as not simply a study of man's physical environment, nor a study of selected human activities; but rather as a study of both, and their interrelation and interdependence. Thus, the chapter on Materials of the Earth's Crust is followed by one on Mineral Resources and Industries of the United States; the one on Weathering, which includes soil production, by another on the Agricultural Industries of the United States. The chapter on the physical features of rivers is followed by a chapter on the historical and economic aspects of American rivers. Part II of the book consists of four chapters devoted to Latin America, the British Empire, Continental Europe, and China and Japan. In planning the book, the author's aim has been to provide exercises, problems, and questions, which call for comparison, observation, reasoning, judging, and generalization. The exercises aim to give the pupils experience in topical recitations, in the use of reference books, and in making excerpts, extracts, etc.—R. A. D., Jr.

INDUSTRIAL HISTORY OF THE UNITED STATES. By Louis Ray Wells, Mechanics Art High School, Boston. The Macmillan Co., 1922. pp. 584.

In this text, Mr. Wells' plan is topical rather than chronological. While there is a considerable overlapping of events (which is almost impossible in a text of this kind) the author has made it possible to distinguish four major periods of development, divided as follows: (1) the colonial period of simple domestic economy, and of dependence upon foreign trade, extending from the early colonial days to 1763; (2) the period of transition from colonial to national economic life, 1763 to about 1825; (3) the period of national consolidation and isolation, 1825 to 1860; and (4) a period of readjustment, marked by combination and organization, growing out of severe competition. Emphasis has been placed upon three principal ideas, first among which was the effect upon people of a constantly moving frontier. Closely connected with the expansion of the people, was the promise of natural resources. A third point of emphasis is the effect of national unity. The author has emphasized the way in which things have been done, rather than the amount done. It may well be called a "qualitative rather than a quantitive analysis."—R. A. D., Jr.

AMPARO. By M. L. Ray and R. A. Bahret, Washington Irving High School, New York. The American Book Co., New York, 1922. pp. 326.

Amparo is an ideal book for the second year of a high school course, or for a first year college class. Its extreme simplicity of construction, and unusually practical vocabulary, make it much more adaptable to class room use than the ordinary novel. Amparo was taken from the works of Perez Escrich, who is little known in America, except as the author of the widely read tale, Fortuna, but who was probably the most popular writer in Spain during his lifetime.—R. A. D., Jr.

VEINTICINCO EPISODIOS BIBLICOS. By A. Marinoni and J. I. Cheskis, Professors of Romance Languages, University of Kansas. The Macmillan Co., New York, 1922. pp. 73.

This book is especially adaptable to class work in conversation and composition because of its simplicity of construction, and the ready familiarity of the students with the material. It could also be made profitable to students of somewhat advanced standing in Spanish.—R. A. D., Jr.

INTRODUCTION TO THE USE OF STANDARD TESTS. By Sidney L. Pressey and Luella C. Presse_. World Book Company. Yonkers, N. Y., 1922. Pp. VI+263.

"The Presseys have published a new test." During the past few years one has expected to hear such an announcement frequently, but now it is a *book* rather than a test. The introduction states that "the manual is intended as an introductory handbook in the use of tests. The effort has been, throughout, to suit the book to the needs of the busy teacher, principal, or superintendent."

As a handbook of directions for giving specific tests, this volume is practically useless. There are very extensive general discussions, apparently intended to introduce the idea of testing to the "busy teacher," but in almost no case would the average teacher feel that she had a speaking acquaintance with the test after the introduction. It is a book *about* tests. It seems that the writers have preferred to gossip about these mysterious strangers, whom they know so well, rather than take the chances involved in allowing them to speak for themselves.

As a discussion of the principles of educational measurements, the book has some merit. It is not, however, a great contribution to knowledge in this field, and it contains no fundamental interpretation of the educational measurements movement. The effort seems to center on an attempt to tell and retell the "busy teacher" that she ought to measure the results of her work, and that there are tests for just that purpose. Even the tests mentioned seem not to have been selected with any uniform criteria of value in mind. The reader will be thoroughly convinced, however, that the writers believe in tests.—M. R. T.

THE EDUCATIONAL VALUE OF THE HOME

(Continued from page 227)

in nothing perhaps is our present system of education failing so greatly as in moral outcome.

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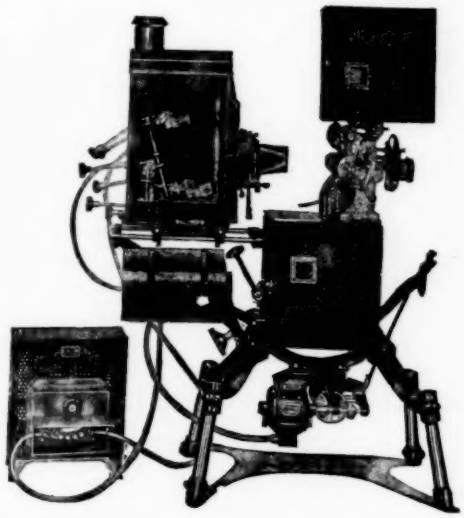

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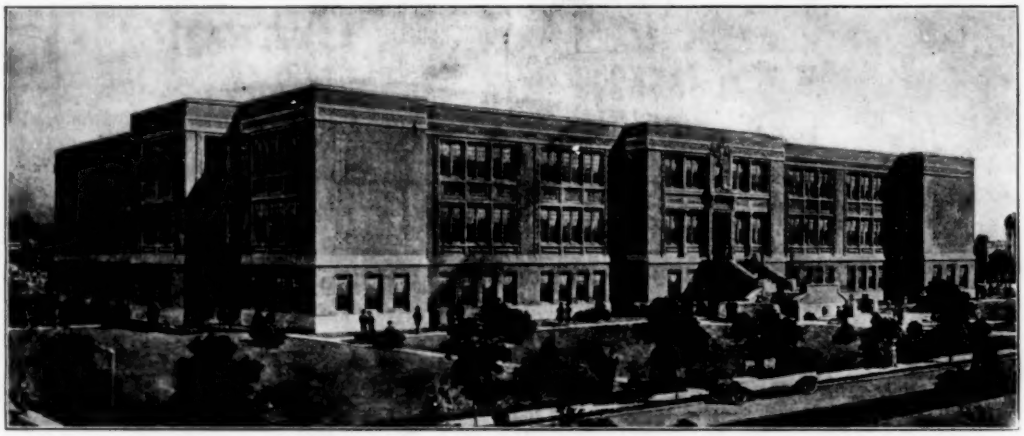

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